



October 16, 2015

Beverly D. McKeone,  
West Virginia Department of Environmental Protection  
Division of Air Quality  
601 57th Street  
Charleston, WV 25304-2345



Re: **Class I Administrative Update**  
**Registration G70-A038**  
**Facility ID No. 095-00036**

Dear Ms. McKeone:

As previously discussed, Noble Energy Inc. (Noble) plans to change equipment at the Shirley 1 Production Facility (SHR 1) as warranted by decline in production. This update reflects the removal of one (1) Caterpillar 3508B engine rated at 690 horsepower (hp), used for compression of flash gas associated with condensate stabilization. In lieu of the Caterpillar 3508B, Noble intends to install one (1) Caterpillar 342TA engine rated at 265 hp to serve the same function in process, sized commensurate with the decline of production.

The replacement engine is equipped with an interlocked catalyst that is integral to the unit such that operation of the engine is precluded in the absence of a properly functioning catalyst. As such, the potential to emit has been calculated for this source based on post control values pursuant to 45 CSR 13 2.19a.

As the facility change constitutes a decrease in emissions pursuant to limitations outlined in 45 CSR 13 4.2.a.8, Noble hereby requests a Class I Administrative Update, detail enclosed.

Additionally, the replacement engine was manufactured prior to June 12, 2006 with no subsequent overhauls triggering reconstruction or modification provisions of New Source Performance Standards (NSPS). The initial engine was subject to NSPS and registered as such. The change of engines therefore does not add substantive control requirements.

If further information is required, please contact me at 724-820-3077 or [clayton.murral@nblenergy.com](mailto:clayton.murral@nblenergy.com).

Sincerely,

A handwritten signature in blue ink, appearing to read 'Clayton Murrall'.

Clayton Murrall  
Senior Environmental Specialist  
Noble Energy, Inc.

Enclosures



WEST VIRGINIA  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 DIVISION OF AIR QUALITY  
 601 57th Street, SE  
 Charleston, WV 25304  
 Phone: (304) 926-0475 • www.dep.wv.gov/daq

**APPLICATION FOR GENERAL PERMIT REGISTRATION  
 CONSTRUCT, MODIFY, RELOCATE OR ADMINISTRATIVELY UPDATE  
 A STATIONARY SOURCE OF AIR POLLUTANTS**

- CONSTRUCTION       MODIFICATION       RELOCATION       CLASS I ADMINISTRATIVE UPDATE  
 CLASS II ADMINISTRATIVE UPDATE

**CHECK WHICH TYPE OF GENERAL PERMIT REGISTRATION YOU ARE APPLYING FOR:**

- |  |  |
|--|--|
| <input type="checkbox"/> G10-D – Coal Preparation and Handling                                   | <input type="checkbox"/> G40-C – Nonmetallic Minerals Processing                             |
| <input type="checkbox"/> G20-B – Hot Mix Asphalt   | <input type="checkbox"/> G50-B – Concrete Batch  |
| <input type="checkbox"/> G30-D – Natural Gas Compressor Stations                                 | <input type="checkbox"/> G60-C – Class II Emergency Generator                                |
| <input type="checkbox"/> G33-A – Spark Ignition Internal Combustion Engines                      | <input type="checkbox"/> G65-C – Class I Emergency Generator                                 |
| <input type="checkbox"/> G35-A – Natural Gas Compressor Stations (Flare/Glycol Dehydration Unit) | <input checked="" type="checkbox"/> G70-A – Class II Oil and Natural Gas Production Facility |

**SECTION I. GENERAL INFORMATION**

1. Name of Applicant (as registered with the WV Secretary of State's Office): <b>Noble Energy, Inc</b>		2. Federal Employer ID No. (FEIN): <b>73-0785597</b>	
3. Applicant's mailing address: <b>Clayton Murrell 1000 Noble Energy Drive Canonsburg, PA 15317</b>		4. Applicant's Physical Address <b>1000 Noble Energy Drive Canonsburg, PA 15317</b>	
5. If applicant is a subsidiary corporation, please provide the name of parent corporation:			
6. WV BUSINESS REGISTRATION. Is the applicant a resident of the State of West Virginia? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO - IF YES, provide a copy of the Certificate of Incorporation/ Organization / Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A. - IF NO, provide a copy of the Certificate of Authority / Authority of LLC / Registration (one page) including any name change amendments or other Business Certificate as Attachment A.			

**SECTION II. FACILITY INFORMATION**

7. Type of plant or facility (stationary source) to be constructed, modified, relocated or administratively updated (e.g., coal preparation plant, primary crusher, etc.): <b>Oil and Gas Production Facility</b>	8a. Standard Industrial Classification (SIC) code: <b>1311</b>	8b. North American Industry Classification System (NAICS) code: <b>211111</b>
9. DAQ Plant ID No. (for existing facilities only): <b>095-00036</b>	10. List all current 45CSR13 and other General Permit numbers associated with this process (for existing facilities only): <b>G70-A038</b>	

**A: PRIMARY OPERATING SITE INFORMATION**

11A. Facility name of primary operating site: <b>Shirley 1 Production Facility</b>		12A. Address of primary operating site: Mailing: _____ Physical: <u>See Section 14A</u>	
13A. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO - IF YES, please explain: <u>Lease</u> - IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.			
14A. - For Modifications or Administrative Updates at an existing facility, please provide directions to the present location of the facility from the nearest state road; - For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a MAP as Attachment F.  From the Wheeling area, from WV 2 south make a left onto WV 180 south of New Martinsville, follow WV 180 and travel approximately 7.4 miles to the intersection of WV 180 and WV 18, make a left onto WV 18 south and travel approximately 15.1 miles to lease road on the right.			
15A. Nearest city or town: <b>Centerville</b>	16A. County <b>Tyler County</b>	17A. UTM Coordinates Northing (KM): <b>4362.828</b> Easting (KM): <b>513.255</b> Zone: <b>17</b>	
18A. Briefly describe the proposed new operation or change (s) to the facility:  <b>Replace flash gas compressor to accommodate decline in production of wells.</b>		19A. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: <b>39.41487</b> Longitude: <b>-80.84602</b>	

**B: 1st ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits)**

11B. Name of 1st alternate operating site:		12B. Address of 1st alternate operating site: Mailing: _____ Physical: _____	
13B. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input type="checkbox"/> YES <input type="checkbox"/> NO - IF YES, please explain: _____ - IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.			

<p>14B. - For <b>Modifications or Administrative Updates</b> at an existing facility, please provide directions to the present location of the facility from the nearest state road;          - For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a <b>MAP as Attachment F</b>.</p>		
15B. Nearest city or town:	16B. County	17B. UTM Coordinates Northing (KM): Easting (KM): Zone:
18B. Briefly describe the proposed new operation or change (s) to the facility:		19B. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):  Latitude: Longitude:

**C: 2nd ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits)**

11C. Name of 1st alternate operating site:	12C. Address of 1st alternate operating site: Mailing: _____ Physical: _____	
<p>13C. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>- IF YES, please explain: _____</p> <p>- IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.</p>		
<p>14C. - For <b>Modifications or Administrative Updates</b> at an existing facility, please provide directions to the present location of the facility from the nearest state road;          - For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a <b>MAP as Attachment F</b>.</p>		
15C. Nearest city or town:	16C. County	17C. UTM Coordinates Northing (KM): Easting (KM): Zone:
18C. Briefly describe the proposed new operation or change (s) to the facility:		19C. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):  Latitude: Longitude:

<p>20. Provide the date of anticipated installation or change:</p> <p style="text-align: center;"><b>10/21/2015</b></p> <p>If this is an after the fact permit application, provide the date upon which the proposed change did happen: / /</p>	<p>21. Date of anticipated Start-up if registration is granted:</p> <p style="text-align: center;"><b>10/22/2015</b></p>								
<p>22. Provide maximum projected Operating Schedule of activity/activities outlined in this application if other than 8760 hours/year. (Note: anything other than 24/7/52 may result in a restriction to the facility's operation).</p> <table border="0"> <tr> <td>Hours per day</td> <td style="text-align: center;"><b>24</b></td> <td>Days per week</td> <td style="text-align: center;"><b>7</b></td> <td>Weeks per year</td> <td style="text-align: center;"><b>52</b></td> <td>Percentage of Operation</td> <td style="text-align: center;"><b>100</b></td> </tr> </table>		Hours per day	<b>24</b>	Days per week	<b>7</b>	Weeks per year	<b>52</b>	Percentage of Operation	<b>100</b>
Hours per day	<b>24</b>	Days per week	<b>7</b>	Weeks per year	<b>52</b>	Percentage of Operation	<b>100</b>		

**SECTION III. ATTACHMENTS AND SUPPORTING DOCUMENTS**

<p>23. Include a check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR22 and 45CSR13).</p>	
<p>24. Include a Table of Contents as the first page of your application package.</p>	
<p>All of the required forms and additional information can be found under the Permitting Section (General Permits) of DAQ's website, or requested by phone.</p>	
<p>25. Please check all attachments included with this permit application. Please refer to the appropriate reference document for an explanation of the attachments listed below.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> ATTACHMENT A : CURRENT BUSINESS CERTIFICATE</li> <li><input type="checkbox"/> ATTACHMENT B: PROCESS DESCRIPTION</li> <li><input type="checkbox"/> ATTACHMENT C: DESCRIPTION OF FUGITIVE EMISSIONS</li> <li><input type="checkbox"/> ATTACHMENT D: PROCESS FLOW DIAGRAM</li> <li><input type="checkbox"/> ATTACHMENT E: PLOT PLAN</li> <li><input type="checkbox"/> ATTACHMENT F: AREA MAP</li> <li><input type="checkbox"/> ATTACHMENT G: EQUIPMENT DATA SHEETS AND REGISTRATION SECTION APPLICABILITY FORM</li> <li><input type="checkbox"/> ATTACHMENT H: AIR POLLUTION CONTROL DEVICE SHEETS</li> <li><input checked="" type="checkbox"/> ATTACHMENT I: EMISSIONS CALCULATIONS</li> <li><input type="checkbox"/> ATTACHMENT J: CLASS I LEGAL ADVERTISEMENT</li> <li><input type="checkbox"/> ATTACHMENT K: ELECTRONIC SUBMITTAL</li> <li><input type="checkbox"/> ATTACHMENT L: GENERAL PERMIT REGISTRATION APPLICATION FEE</li> <li><input type="checkbox"/> ATTACHMENT M: SITTING CRITERIA WAIVER</li> <li><input type="checkbox"/> ATTACHMENT N: MATERIAL SAFETY DATA SHEETS (MSDS)</li> <li><input type="checkbox"/> ATTACHMENT O: EMISSIONS SUMMARY SHEETS</li> <li><input checked="" type="checkbox"/> OTHER SUPPORTING DOCUMENTATION NOT DESCRIBED ABOVE (Equipment Drawings, Aggregation Discussion, etc.)</li> </ul> <p>Please mail an original and two copies of the complete General Permit Registration Application with the signature(s) to the DAQ Permitting Section, at the address shown on the front page of this application. Please DO NOT fax permit applications. For questions regarding applications or West Virginia Air Pollution Rules and Regulations, please refer to the website shown on the front page of the application or call the phone number also provided on the front page of the application.</p>	

SECTION IV. CERTIFICATION OF INFORMATION

This General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of a Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, Emission Inventory, Certified Emission Statement, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. Any administratively incomplete or improperly signed or unsigned Registration Application will be returned to the applicant.

FOR A CORPORATION (domestic or foreign)

I certify that I am a President, Vice President, Secretary, Treasurer or In charge of a principal business function of the corporation

FOR A PARTNERSHIP

I certify that I am a General Partner

FOR A LIMITED LIABILITY COMPANY

I certify that I am a General Partner or General Manager

FOR AN ASSOCIATION

I certify that I am the President or a member of the Board of Directors

FOR A JOINT VENTURE

I certify that I am the President, General Partner or General Manager

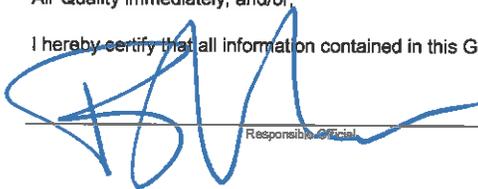
FOR A SOLE PROPRIETORSHIP

I certify that I am the Owner and Proprietor

I hereby certify that \_\_\_\_\_ is an Authorized Representative and in that capacity shall represent the interest of the business (e.g., Corporation, Partnership, Limited Liability Company, Association Joint Venture or Sole Proprietorship) and may obligate and legally bind the business. If the business changes its Authorized Representative, a Responsible Official shall notify the Director of the Office of Air Quality immediately, and/or

I hereby certify that all information contained in this General Permit Registration Application and any supporting documents

Signature  
(Please use blue ink)



Responsible Official

10/1/15

Date

Name & Title  
(Please print or type)

RJ Moses Operations Manager Marcellus Business Unit

Signature  
(Please use blue ink)

Authorized Representative (if applicable)

Date

Applicant's Name Noble Energy, Inc

Phone & Fax

(724) 820-3001

Phone

Fax

Email

[rj.moses@nbenergy.com](mailto:rj.moses@nbenergy.com)

cc: [clayton.murral@nbenergy.com](mailto:clayton.murral@nbenergy.com)

**Noble Energy, Inc; Shirley 1 Production Facility  
Engine Detail Sheet**

**Original Engine**

Emission Unit Number	3S-ENG1	Source Location	Zone:
Equipment ID		Horizontal:	
Source Description	690 hp CAT G3508B	Vertical:	
Engine Usage	LP Separator VRU	Potential operation	8760 hr/yr
Engine Make	Caterpillar		
Engine Model	G3508B		
Serial Number			
Manufacture Date			
NSPS Applicability		Potential fuel usage	35.94 MMscf/yr
Engine Configuration	4 cycle, lean burn		
Emission Controls	Oxidation Catalyst		
ISO Rating	690 BHP	Stack ID	3S-ENG1
Site Rating	BHP		
Fuel Heating Value	1220 Btu/scf		
Heat Rate	5.01 MMBtu/hr		
Engine Heat Rate	7254 Btu/hp-hr		

**Potential Emissions**

Pollutant	Emission Factor		Nominal Rating	Hrs of Operation	Estimated Emissions		Source of Emission Factor	Pollutant
	(lb/MMBtu)	(g/hp-hr)			(lb/hr)	(tpy)		
NOx	1.00		690	8760	1.52	6.66	Mfr Factors	NOx
CO	2.00		690	8760	3.04	13.33	Mfr Factors	CO
VOC <sup>2</sup>	0.70		690	8760	1.06	4.66	Mfr Factors	VOC <sup>2</sup>
CO2	110		690	8760	550.58	2411.53	AP-42 Ch. 3.2, table 3.2-3	
SOx	5.88E-04		690	8760	0.00	0.01	AP-42 Ch. 3.2, table 3.2-3	
PM	9.50E-03		690	8760	0.05	0.21	AP-42 Ch. 3.2, table 3.2-3	
PM10	9.50E-03		690	8760	0.05	0.21	AP-42 Ch. 3.2, table 3.2-3	
Formaldehyde	2.05E-02		690	8760	0.10	0.45	AP-42 Ch. 3.2, table 3.2-3	
Benzene	1.58E-03		690	8760	0.01	0.03	AP-42 Ch. 3.2, table 3.2-3	
Toluene	5.58E-04		690	8760	0.00	0.01	AP-42 Ch. 3.2, table 3.2-3	
Ethylbenzene	2.48E-05		690	8760	0.00	0.00	AP-42 Ch. 3.2, table 3.2-3	
Xylene	1.95E-04		690	8760	0.00	0.00	AP-42 Ch. 3.2, table 3.2-3	
CH <sub>4</sub>	0.23		690	8760	1.15	5.04	API <sup>1</sup>	
CO2e					579.3588	2537.59		

<sup>1</sup>API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, Table 4-9

<sup>2</sup>Includes total hydrocarbons

**Notes**

**Replacement Engine**

Emission Unit Number	3S-ENG1		
Equipment ID		Source Location	Zone:
Source Description	265 hp CAT G342TA	Horizontal:	
Engine Usage	LP Separator VRU	Vertical:	
Engine Make	Caterpillar	Potential operation	8760 hr/yr
Engine Model	342TA		
Serial Number			
Manufacture Date			
NSPS Applicability		Potential fuel usage	14.11 MMscf/yr
Engine Configuration	4 cycle, rich burn		
Emission Controls	NSCR with interlock		
ISO Rating	265 BHP	Stack ID	3S-ENG1
Site Rating	BHP		
Fuel Heating Value	1220 Btu/scf		
Heat Rate	1.97 MMBtu/hr		
Engine Heat Rate	7418 Btu/hp-hr		

**Potential Emissions**

Pollutant	Emission Factor		Nominal Rating (hp)	Hrs of Operation (hrs/yr)	Estimated Emissions		Source of Pollutant Emission Factor
	(lb/MMBtu)	(g/hp-hr)			(lb/hr)	(tpy)	
NOx	1.52		265	8760	0.89	3.89	Mfr Factors NOx
CO	3.04		265	8760	1.78	7.78	Mfr Factors CO
VOC <sup>2</sup>		1.06	265	8760	0.62	2.71	Mfr Factors VOC <sup>2</sup>
CO2	110		265	8760	216.23	947.11	AP-42 Ch. 3.2, table 3.2-3
SOx	5.88E-04		265	8760	0.00	0.01	AP-42 Ch. 3.2, table 3.2-3
PM	9.50E-03		265	8760	0.02	0.08	AP-42 Ch. 3.2, table 3.2-3
PM10	9.50E-03		265	8760	0.02	0.08	AP-42 Ch. 3.2, table 3.2-3
Formaldehyde	2.05E-02		265	8760	0.04	0.18	AP-42 Ch. 3.2, table 3.2-3
Benzene	1.58E-03		265	8760	0.00	0.01	AP-42 Ch. 3.2, table 3.2-3
Toluene	5.58E-04		265	8760	0.00	0.00	AP-42 Ch. 3.2, table 3.2-3
Ethylbenzene	2.48E-05		265	8760	0.00	0.00	AP-42 Ch. 3.2, table 3.2-3
Xylene	1.95E-04		265	8760	0.00	0.00	AP-42 Ch. 3.2, table 3.2-3
CH <sub>4</sub>	0.23		265	8760	0.45	1.98	API <sup>1</sup>
CO <sub>2</sub> e						996.62	

<sup>1</sup>API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, Table 4-9

<sup>2</sup>Includes total hydrocarbons

Notes

**Initial Engine**  
**690 hp CAT G3508B**  
**Potential Emissions**

Pollutant	Estimated Emissions	
	(lb/hr)	(tpy)
NOx	1.52	6.66
CO	3.04	13.33
VOC	1.06	4.66
CO2	550.58	2411.53
SOx	0.00	0.01
PM	0.05	0.21
PM10	0.05	0.21
Formaldehyde	0.10	0.45
Benzene	0.01	0.03
Toluene	0.00	0.01
Ethylbenzene	0.00	0.00
Xylene	0.00	0.00
CH4	1.15	5.04
CO2e		2537.592

**Replacement Engine**  
**265 hp CAT G342TA**  
**Potential Emissions**

Pollutant	Estimated Emissions	
	(lb/hr)	(tpy)
NOx	0.89	3.89
CO	1.78	7.78
VOC	0.62	2.71
CO2	216.23	947.11
SOx	0.00	0.01
PM	0.02	0.08
PM10	0.02	0.08
Formaldehyde	0.04	0.18
Benzene	0.00	0.01
Toluene	0.00	0.00
Ethylbenzene	0.00	0.00
Xylene	0.00	0.00
CH4	0.45	1.98
CO2e		996.615903

**Change in Emissions**

Pollutant	(tpy)
NOx	-2.773273979
CO	-5.546547958
VOC	-1.951527407
CO2	-1464.43
SOx	-0.01
PM	-0.13
PM10	-0.13
Formaldehyde	-0.27
Benzene	-0.02
Toluene	-0.01
Ethylbenzene	0.00
Xylene	0.00
CH4	-3.06
CO2e	-1540.98



2585 Heartland Dr.  
 Sheridan, WY 82801  
 Office: | Direct: +1 (307) 676.5081  
 rjames@emittechnologies.com

Prepared For:  
 Jacob McCarley  
 EXTERRAN

QUOTE: QUO-16536-V7J1  
 Expires: October 01, 2015

**INFORMATION PROVIDED BY CATERPILLAR**

Engine: G342 TA LCR  
 Horsepower: 265  
 RPM: 1200  
 Compression Ratio: 7.5  
 Exhaust Flow Rate: 1005 CFM  
 Exhaust Temperature: 1095 °F  
 Reference: LEB09194  
 Fuel: Natural Gas  
 Annual Operating Hours: 8760

**Uncontrolled Emissions**

	<u>g/bhp-hr</u>	<u>Lb/Hr</u>	<u>Tons/Year</u>
NOx:	9.80	5.73	25.08
CO:	10.70	6.25	27.38
THC:	0.80	0.47	2.05
NMHC:	N/A	N/A	N/A
NMNEHC:	N/A	N/A	N/A
HCHO:	N/A	N/A	N/A
O2:	0.50 %		

**POST CATALYST EMISSIONS**

	<u>g/bhp-hr</u>
NOx:	<1.52
CO:	<3.04
VOC:	<1.06

**CONTROL EQUIPMENT**

**Catalyst Housing**

Model: EAH-1450-0505F-2CEE  
 Manufacturer: EMIT Technologies, Inc  
 Element Size: Round 14.5" x 3.5"  
 Housing Type: 2 Element Capacity  
 Catalyst Installation: Accessible Housing  
 Construction: 10 gauge Carbon Steel  
 Sample Ports: 6 (0.5" NPT)  
 Inlet Connections: 5" Flat Face Flange  
 Outlet Connections: 5" Flat Face Flange  
 Configuration: End In / End Out  
 Silencer: Integrated  
 Silencer Grade: Hospital  
 Insertion Loss: 35-40 dBA  
 Estimated Lead Time: In Stock

**Catalyst Element**

Model: RE-1450-T  
 Catalyst Type: NSCR, Standard Precious Group Metals  
 Substrate Type: BRAZED  
 Manufacturer: EMIT Technologies, Inc  
 Element Quantity: 1  
 Element Size: Round 14.5" x 3.5"  
 Estimated Lead Time: In Stock

The information in this quotation, and any files transmitted with it, is confidential and may be legally privileged. It is intended only for the use of individual(s) within the company named above. If you are the intended recipient, be aware that your use of any confidential or personal information may be restricted by state and federal privacy laws.



Jun 19, 2015

Dennis Matto  
Exterran  
4477 Gleason Road  
Lakewood, NY 14750

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Exterran  
QHSE and Operations Services  
16666 Northchase Drive  
Houston, Texas 77060 U.S.A.

Main 281.836.7000  
Fax 281.836.8161  
www.exterran.com

Re: Engine Pedigree for Exterran Compressor Unit 40004, Engine Serial Number 71B03366

In order to better assist your company with any of its state and federal permitting needs, Exterran submits the following information in regards to the engine of the above-referenced compressor unit, which Exterran is currently utilizing to provide your company contract compression services. This letter should provide information necessary to answer questions pertaining to, but not limited to, the New Source Performance Standards (NSPS) for Stationary Spark Ignition Internal Combustion Engines, Subpart JJJJ. This information is current as of Jun 19, 2015.

<b>Engine Make:</b>	CATERPILLAR
<b>Engine Model:</b>	G342TA
<b>Engine Serial Number:</b>	71B03366
<b>Engine Type:</b>	4 Stroke RB
<b>Engine Category:</b>	Existing
<b>Engine Subcategory:</b>	Non Certified
<b>Engine NSPS Status*:</b>	Exempt
<b>Exemption Justification*:</b>	Overhauls since 6/12/06 have not triggered recon./modif.
<b>Engine Speed:</b>	1200.00
<b>OEM Rated HP:</b>	265.00
<b>Engine Manufacture Date:</b>	Pre June 12, 2006
<b>Customer:</b>	N/A
<b>Business Unit:</b>	N/A
<b>Exterran Unit Number:</b>	40004
<b>Customer Lease Name:</b>	N/A

Please contact Kyle Poycker with any questions at [kyle.poycker@exterran.com](mailto:kyle.poycker@exterran.com).

\* The "Engine NSPS Status" and "Exemption Justification" entries herein are based on Exterran's present knowledge of the engine in question and its reading of U.S. EPA's regulations and guidance pursuant to 40 C.F.R. Part 60, Subpart JJJJ. Any change in law or in the federal, state, or local interpretation of existing law could result in this engine being subject to additional or different legal requirements. These conclusions are Exterran's and are not offered as legal opinions or advice to your company. Additionally, any reconstruction or modification respecting this engine (as those terms are defined in the applicable regulations) could result in the applicability of Subpart JJJJ or other legal requirements to this engine and create legal compliance responsibilities for your company.



**SCHEDULE 'A' TO MASTER COMPRESSION SERVICES AGREEMENT**

Company: Noble Energy Inc.  
 Attention: Robert Olech

Date: 6/30/2015  
 Quote #: 92624/120012  
 Acct. Mgr.: Dennis Matto

In accordance with your request, we are pleased to offer the herein described Services (as defined below) on the Shirley #1 lease in Tyler County, WV (describe to the extent possible, including at minimum county/parish and state) ("Site"). Services may commence at the Site approximately 2 weeks from date of execution of this Schedule, but Contractor's obligation is subject to credit approval and prior commitments.

In reliance on your specifications as to the operating conditions set forth below, we will compress the natural gas tendered to us at the Site up to the volume and the discharge pressure specified ("Services"). Our ability to deliver the Services depends on your satisfaction of the operating conditions and responsibilities set forth herein.

SUCTION PRESSURE	PSIG	25		
DISCHARGE PRESSURE	PSIG	450		
VOLUMETRIC FLOW OUT*	MMSCFD	.700		
INTAKE TEMPERATURE	°F	70		
	SPECIFIC GRAVITY	.72		
	ALTITUDE	FT	1500	
	H <sub>2</sub> S Process Gas (PPM)	0**		
	H <sub>2</sub> S Fuel Gas (PPM)	0***		
	AMBIENT TEMP.	°F	100	

\* This volume is guaranteed ±3% dependent on accuracy of operating conditions listed above.  
 \*\* H<sub>2</sub>S process gas content equal to or greater than 100 PPM triggers the applicability of Contractor's "High H<sub>2</sub>S Process Gas Content Schedule."  
 \*\*\* H<sub>2</sub>S fuel gas content limits are addressed on Page 2 of this Schedule.

SERVICE FEE is \_\_\_\_\_ per month, plus Taxes, for a minimum of \_\_\_\_\_ months guaranteed ("Minimum Term"). The Service fee shall be payable monthly in advance at EXLP Operating LLC's ("Contractor") Houston office, commencing from the earlier of the date of mobilization of the Services to the Site or \_\_\_\_\_ days after the date Contractor notifies Company that the Services are available for mobilization to the Site. Subsequent to the Minimum Term, the term of this Schedule shall continue on a year to year basis until terminated by either Party upon \_\_\_\_\_ days advanced written notice. The Service fee reflected above will automatically increase by \_\_\_\_\_ on each anniversary date of the billing start date, unless this Schedule is terminated pursuant to the provisions herein. Contractor's obligation to provide the Services shall cease upon the effective date of termination, but the Service fee shall continue to be assessed until the later of expiration of such \_\_\_\_\_ or the completion of demobilization if delayed or prevented in any way, in whole or in part, by Company. This quote is valid for a period of \_\_\_\_\_ days. Please check with Contractor prior to ordering after \_\_\_\_\_ days has expired.

This Schedule incorporates by reference the Master Compression Services Agreement or equivalent master agreement described below and as qualified hereinafter (the "Master Agreement"), and shall be deemed an individual agreement between the Parties for the Services. If the Master Agreement is between parties other than successors in interest of the Parties to this Schedule, the Parties ratify the Master Agreement in its form existing as of the date first shown above, and as may be modified from time to time by Contractor and Company. If the Master Agreement covers the provision of services in addition to the Services and/or the provision of goods, only those portions of the Master Agreement applicable to the Services and those expressly applicable to all goods and services, including the Services, are incorporated herein. Unless defined herein, terms have the meanings set forth in the Master Agreement.

Site-specific optional equipment: \_\_\_\_\_ at an additional \$ \_\_\_\_\_ /month.  
 Description of Site-specific optional equipment: The converter, integral to this unit, will result in an emissions output of 1.51lb/hr, 6.65 tpy NOx; 3.03lb/hr, 13.32 tpy CO; 1.05 lb/hr, 4.65 tpy VOC. The converter will include an ARFC with interlock designed in such a way as to not allow operation of the engine without operation of the catalytic converter in accordance with 45 CSR 13 2.19a.

Master Agreement Date:	<u>1/1/2006</u>		
Master Agreement Name:	<u>Master Compression Services Agreement</u>		
Master Agreement Company Name:	<u>Noble Energy, Inc.</u>		
Master Agreement Contractor Name:	<u>EXLP Operating LLC</u>		
Freight charges for mobilization to the Site from:	<u>Fort Worth, TX</u>	Paid for by	<u>Customer</u>
Freight charges for demobilization from the Site to:	<u>Yukon, Ok</u>	Paid for by	<u>Customer</u>